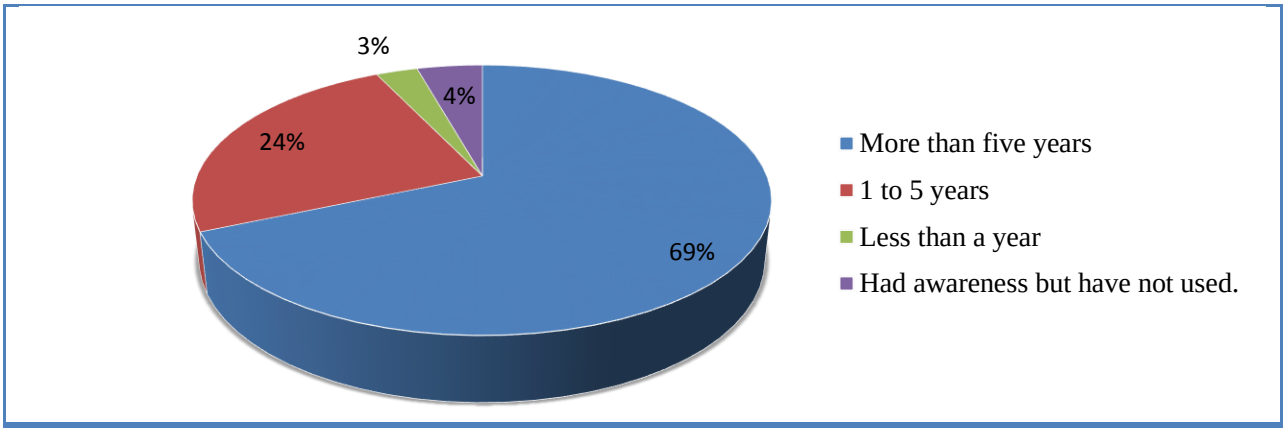
LANDFIRE User Questionnaire, 2014

Number	Question	Total Responses
1	How long have you been familiar with LANDFIRE data products?	254
2	How often do you use LANDFIRE data products downloaded directly from LANDFIRE vs. using them in an existing application such as WFDSS (Wildland Fire Decision Support System)?	251
3	Where do you currently use or plan to use LANDFIRE data?	253
4	How satisfied are you with the data when they are used in the application for its intended purpose?	252
5	Reviewing question 4 above, what can be improved (if applicable)?	90
6	Please rate the usefulness of LANDFIRE Reference Products	206
7	Please rate the usefulness of LANDFIRE Disturbance Products	207
8	Please rate the usefulness of LANDFIRE Vegetation Products	210
9	Please rate the usefulness of LANDFIRE Fire Regime Products	205
10	Please rate the usefulness of LANDFIRE Fuel Products	211
11	Please rate the usefulness of LANDFIRE Topographic Products	205
12	Which of these LANDFIRE characteristics is important to you?	204
13	Which characteristics does LANDFIRE actually accomplish?	200
14	If you are using LANDFIRE data, are you doing any local calibration or modification? If you are calibrating, please describe what kind of calibration and why.	159
15	How often do you use each of these map programs as compared with LANDFIRE?	201
16	Have you visited the LANDFIRE website?	203
17	What attributes of the website do you find useful?	197
18	How do you stay current with LANDFIRE information?	187
19	Rate the usefulness of these (information source) options:	201
20	Have you ever tried to contact LANDFIRE for help?	200
21	Please rate your experience with each method used (help contacts).	185
22	How could LANDFIRE improve customer service?	29
23	What has been your training with LANDFIRE data? Please rate the effectiveness of each method of training you've experienced.	196
24	Is your knowledge of or training with GIS a barrier to your use or access of LANDFIRE data and tools?	196
25	Have you recommended LANDFIRE data products to others?	197
26	How likely are you to recommend LANDFIRE to colleagues in the future?	199
27	How likely are you to continue to use LANDFIRE data products?	200
28	Should the LANDFIRE program be supported in the future?	180

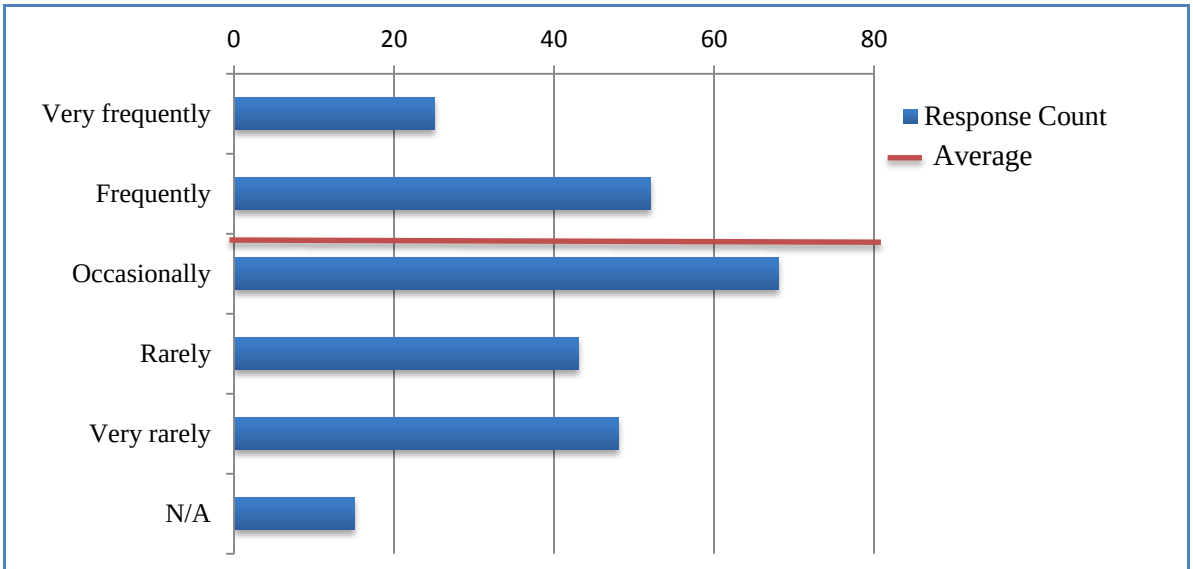
29	If LANDFIRE data products were not updated and remapped, what would you do?	186
30	With the LANDFIRE remap, are there additional products that LANDFIRE should produce and add to the 20+ deliverables?	48
31	Do you have any suggestions on how we might further improve our product offerings?	53
32	Would you rather see LANDFIRE remap data products completed comprehensively for the entire CONUS, Alaska, and insular areas (delivered at the end of a 2- to 3-year development effort), or can remap completion and delivery be staggered in alternate years over a 4- to 6-year period?	177
33	Should LANDFIRE maintain a biennial (two years) update strategy (Data Products updated for disturbances)?	182
34	LANDFIRE is planning for a decadal (~ 10 years) remap strategy (data products remapped across all lands using the most recent imagery). Is this an appropriate frequency to have remapped data products for your use?	177
35	Would you like LANDFIRE training to be included in existing relevant (Wildland Fire Program courses) S- or Rx-courses?	171
36	The LANDFIRE program partners with several other programs (see "About LANDFIRE" and "LANDFIRE Partnerships"). Are there other organizations that LANDFIRE should collaborate and/or integrate data processes, methods, etc? Please list your thoughts on these products and provide as much specificity and detail for application as possible.	29
37	In your opinion, what is the most important issue facing LANDFIRE today?	106
38	What is the primary agency or organization that you work for?	196
39	Please select the best fit from the categories listed below of the work you do or your position.	195
40	Which of the following best describe the location(s) of your work focus?	195

Q 1: How long have you been familiar with LANDFIRE data products?



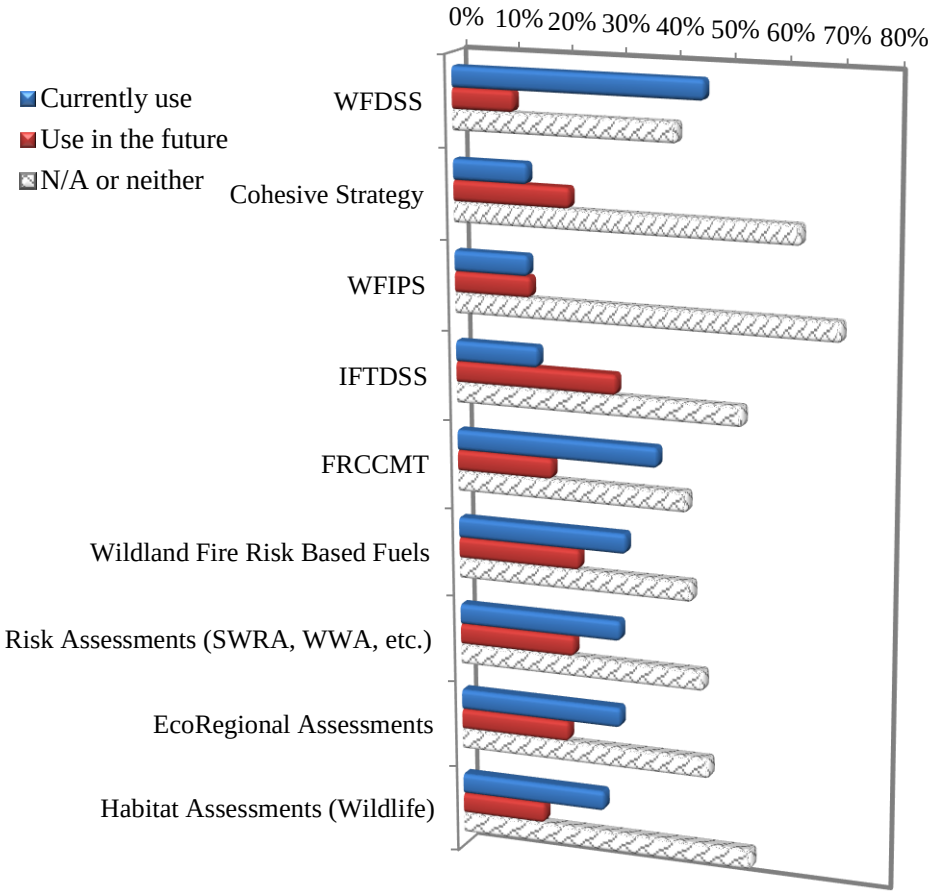
Answer Options	Response Percent	Response Count
More than five years	68.5%	174
1 to 5 years	24.4%	62
Less than a year	2.8%	7
Had awareness but have not used.	4.3%	11
	answered question	**254**
	skipped question	**9**

Q 2: How often do you use LANDFIRE data products downloaded directly from LANDFIRE vs. using them in an existing application such as WFDSS (Wildland Fire Decision Support System)?



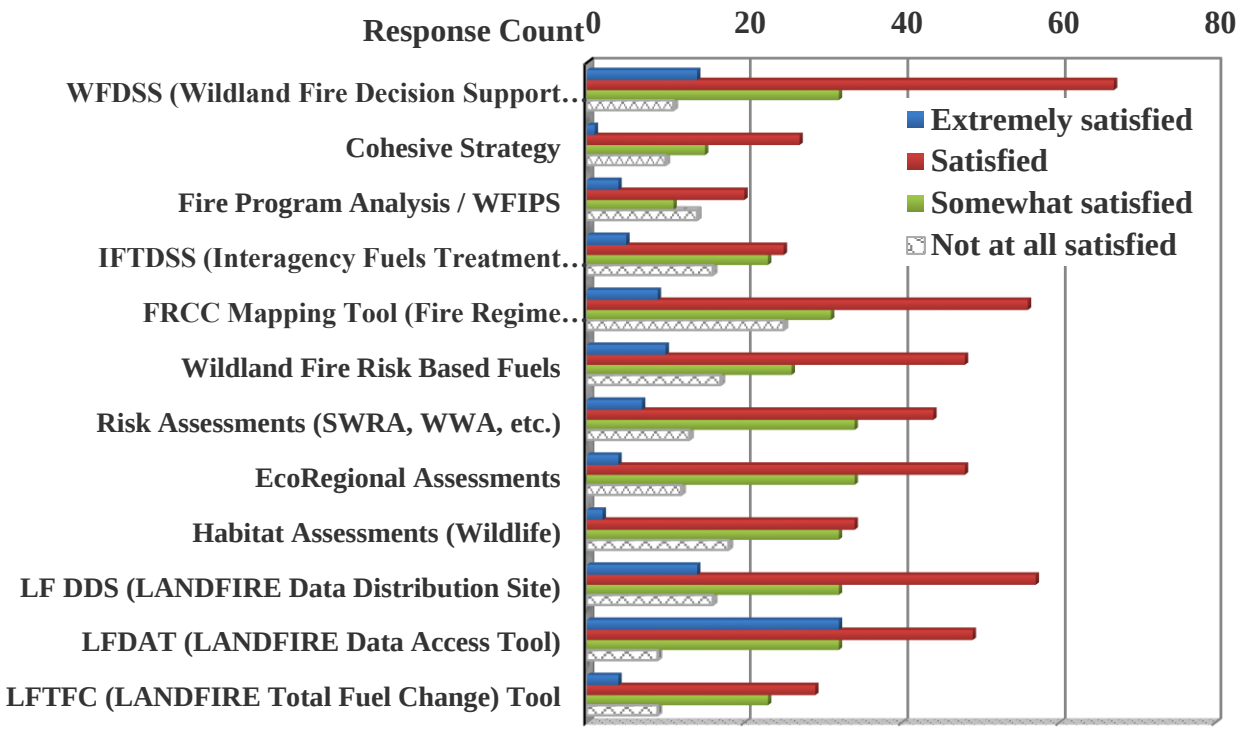
Answer Options	Very frequently	Frequently	Occasionally	Rarely	Very rarely	N/A	Response Count
	25	52	68	43	48	15	251

Q 3: Where do you currently use or plan to use LANDFIRE data?



Answer Options	Currently use	Use in the future	N/A or neither	Response Count
WFDSS (Wildland Fire Decision Support System)	105	26	94	225
Cohesive Strategy	30	47	138	215
Fire Program Analysis / WFIPS	30	31	154	215
IFTDSS (Interagency Fuels Treatment Decision Support System)	34	66	117	217
FRCC Mapping Tool (Fire Regime Condition Class)	88	42	101	231
Wildland Fire Risk Based Fuels	72	52	100	225
Risk Assessments (SWRA, WWA, etc.)	70	50	106	226
EcoRegional Assessments	71	48	110	229
Habitat Assessments (Wildlife)	62	36	125	223
Other Uses or Applications				51
			answered question	254
			skipped question	9

Q 4: How satisfied are you with the data when they are used in the application for its intended purpose?



Answer Options	Extremely satisfied	Satisfied	Somewhat satisfied	Not at all satisfied	N/A	Response Count
WFDSS (Wildland Fire Decision Support System)	14	67	32	11	101	225
Cohesive Strategy	1	27	15	10	164	217
Fire Program Analysis / WFIPS	4	20	11	14	161	210
IFTDSS (Interagency Fuels Treatment Decision Support System)	5	25	23	16	146	215
FRCC Mapping Tool (Fire Regime Condition Class)	9	56	31	25	108	229
Wildland Fire Risk Based Fuels	10	48	26	17	122	223
Risk Assessments (SWRA, WWA, etc.)	7	44	34	13	125	223
EcoRegional Assessments	4	48	34	12	127	225
Habitat Assessments (Wildlife)	2	34	32	18	136	222
LF DDS (LANDFIRE Data Distribution Site)	14	57	32	16	102	221
LFDAT (LANDFIRE Data Access Tool)	32	49	32	9	100	222
LFTFC (LANDFIRE Total Fuel Change) Tool	4	29	23	9	147	212
Other Uses or Applications						21

Q5: Reviewing question 4 above, what can be improved (if applicable)?

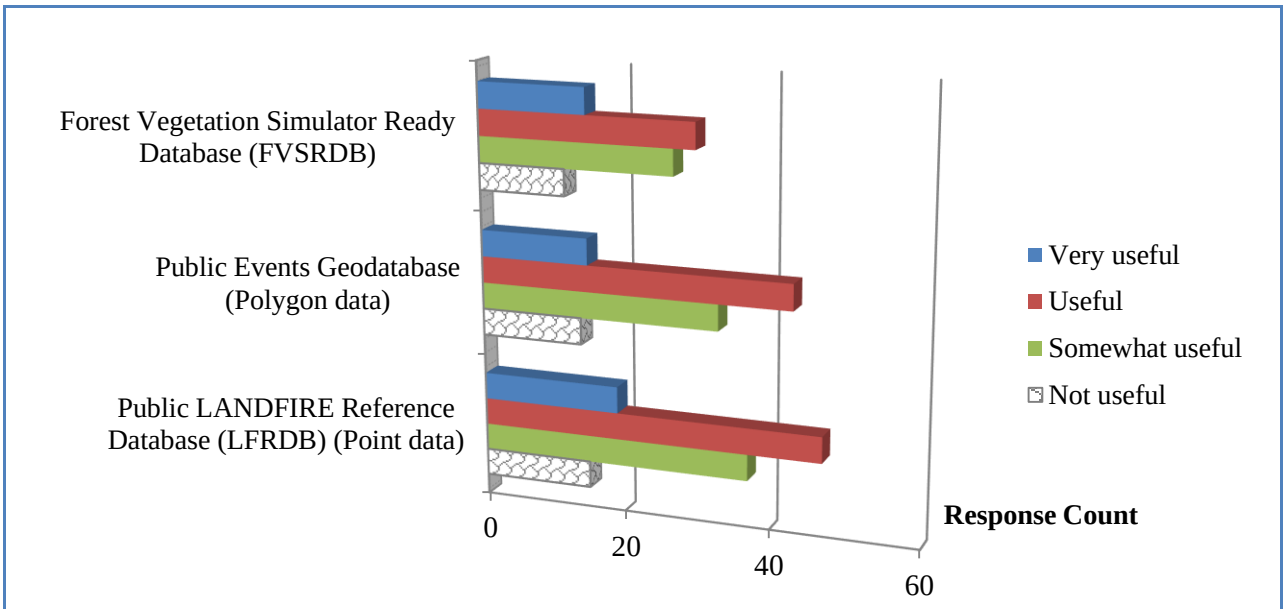
When asked about specific improvements to LANDFIRE data and a variety of applications, 89 individuals responded. Of those, 45% of the responders requested increased thematic accuracy for one or more of the data layers, the EVT layer was the most commonly mentioned layer. Ground truthing and the use of remotely sensed data such as LiDAR are suggested methods to improve accuracy.

Several responders (8 of 89) suggested improvements to the Data Distribution Site or the Data Access Tool specifically, the red background in the LANDFIRE online data access tool caused problems for some users.

Five users would like a more convenient way to modify the LANDFIRE data; most likely these users are not aware of the Area Change Tool (available at https://www.frames.gov/partner-sites/wfmrda-ffe/tools/current-resources/) or they were lacking GIS skills.

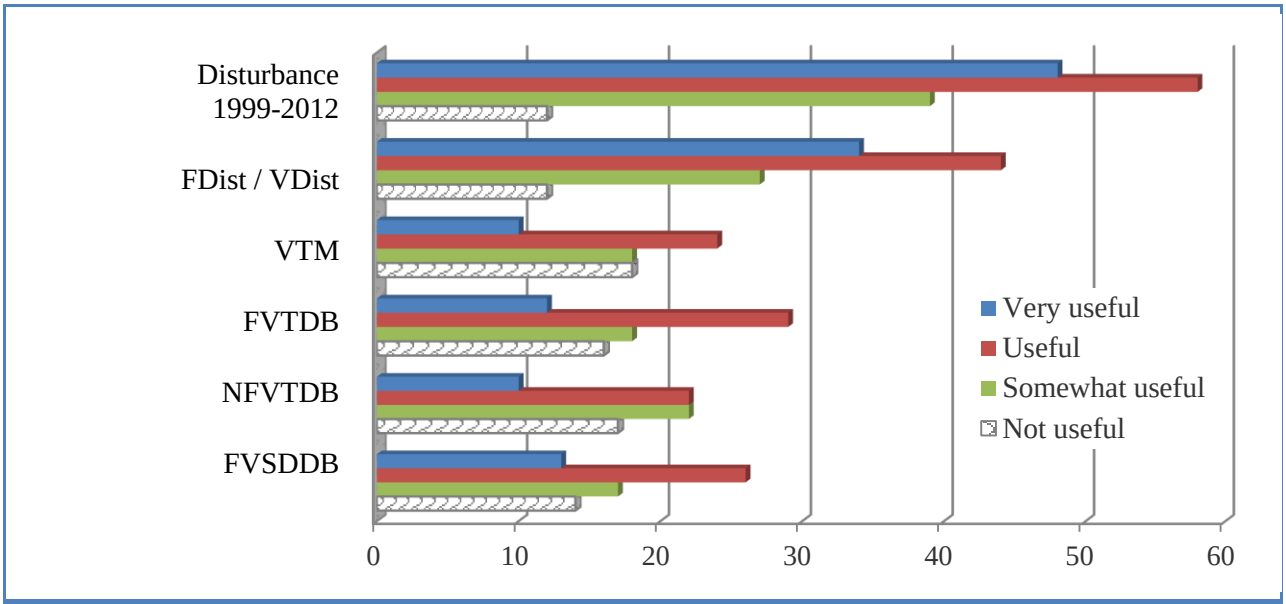
A few responders (7 of 89) would like the LANDFIRE data to be at finer spatial scale (e.g. 10 m spatial resolution) with increased applicability for local area analysis. Although there seems to be a consensus that a finer spatial scale is a desired improvement, there also seems to be an understanding that LANDFIRE uses Landsat 30 m data and producing a finer resolution dataset for as large of an area as the USA may be challenging.

Q6: Please rate the usefulness of LANDFIRE Reference Products



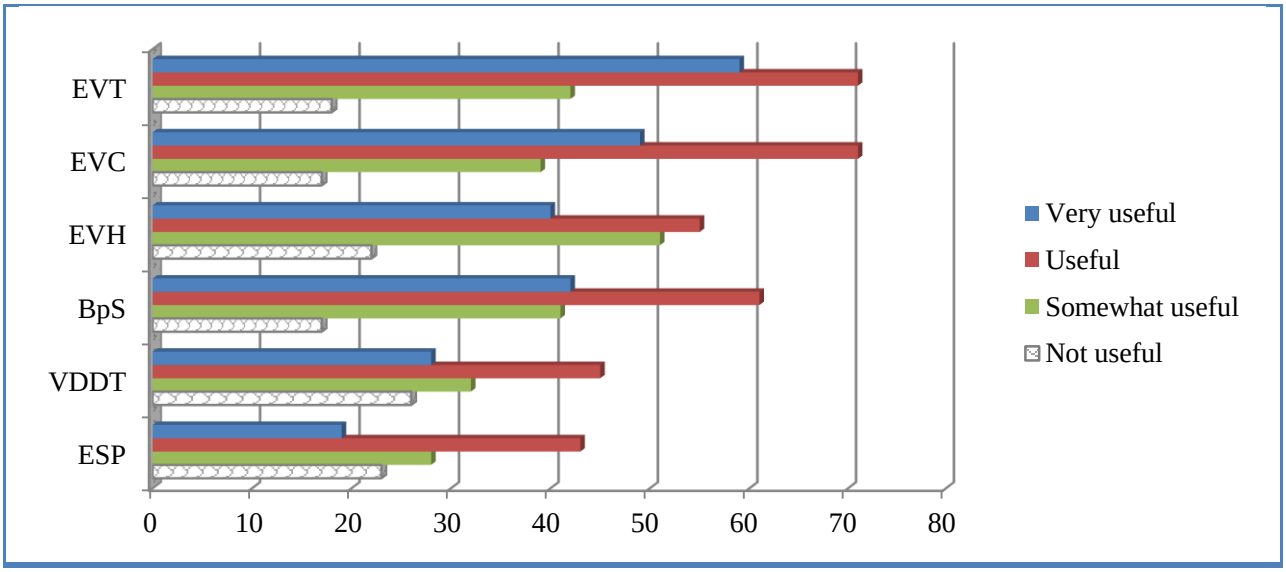
Answer Options	Very useful	Useful	Somewhat useful	Not useful
Forest Vegetation Simulator Ready Database (FVSRDB)	15	30	27	12
Public Events Geodatabase (Polygon data)	15	43	33	14
Public LANDFIRE Reference Database (LFRDB) (Point data)	19	47	37	15

Q7: Please rate the usefulness of LANDFIRE Disturbance Products



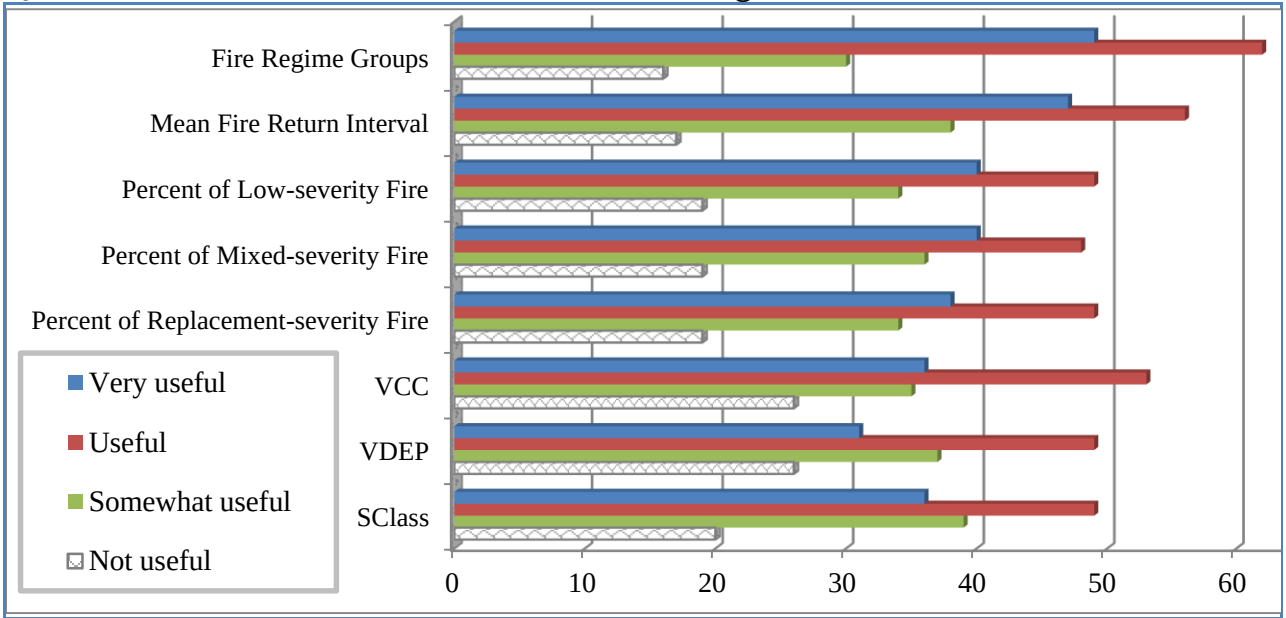
Answer Options	Very useful	Useful	Somewhat useful	Not useful
Disturbance 1999-2012	48	58	39	12
Fuel / Vegetation Disturbance (FDist / VDist)	34	44	27	12
Vegetation Transition Magnitude (VTM)	10	24	18	18
Forest Vegetation Transitions Database (FVTDB)	12	29	18	16
Non-forest Vegetation Transitions Database (NFVTDB)	10	22	22	17
Forest Vegetation Simulator Disturbance Database (FVSDDB)	13	26	17	14

Q8: Please rate the usefulness of LANDFIRE Vegetation Products



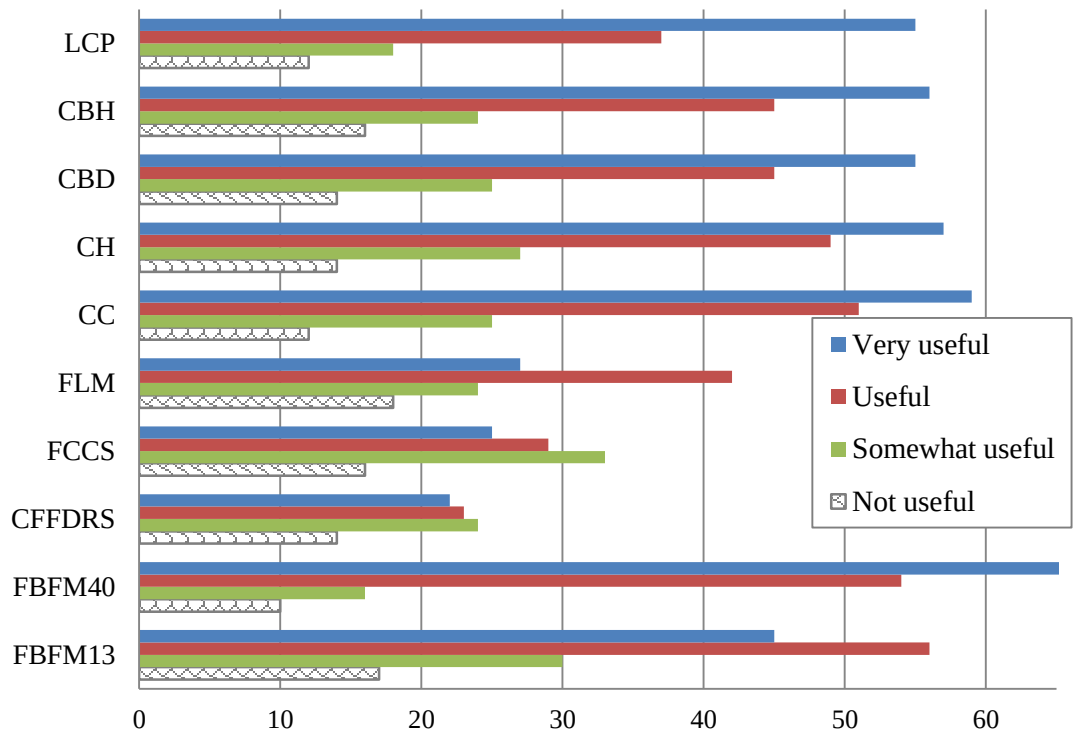
Answer Options	Very useful	Useful	Somewhat useful	Not useful
Existing Vegetation Type (EVT)	59	71	42	18
Existing Vegetation Cover (EVC)	49	71	39	17
Existing Vegetation Height (EVH)	40	55	51	22
Biophysical Settings (BpS)	42	61	41	17
Vegetation Dynamics Models (VDDT)	28	45	32	26
Environmental Site Potential (ESP)	19	43	28	23

Q9: **Please rate the usefulness of LANDFIRE Fire Regime Products**



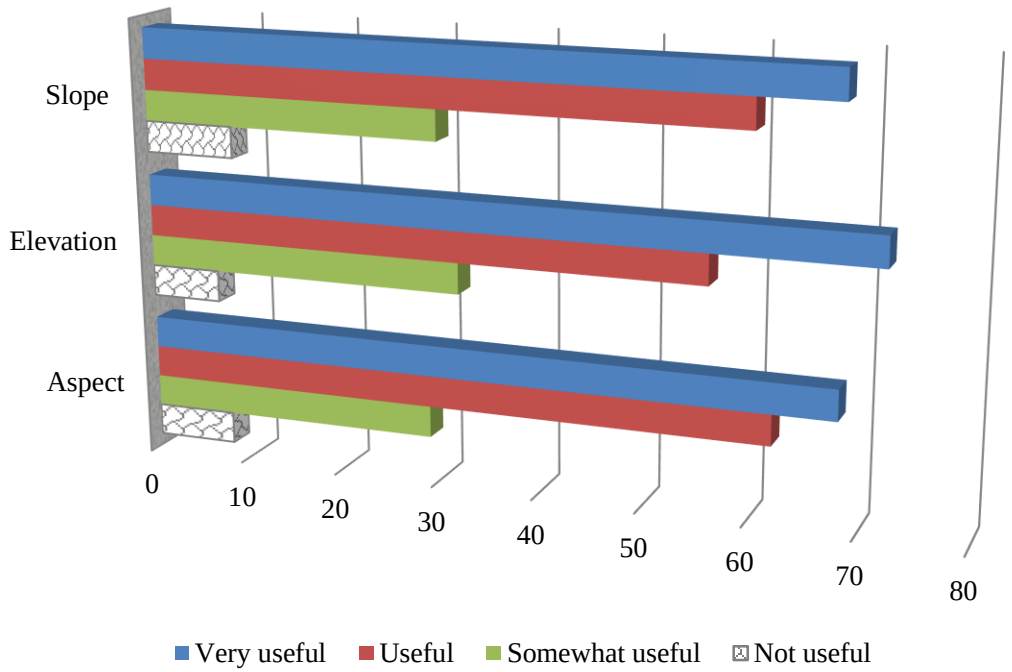
Answer Options	Very useful	Useful	Somewhat useful	Not useful
Fire Regime Groups	49	62	30	16
Mean Fire Return Interval	47	56	38	17
Percent of Low-severity Fire	40	49	34	19
Percent of Mixed-severity Fire	40	48	36	19
Percent of Replacement-severity Fire	38	49	34	19
Vegetation Condition Class (VCC [formally FRCC])	36	53	35	26
Vegetation Departure (VDEP [formerly FRCC Departure Index])	31	49	37	26
Succession Class (SClass)	36	49	39	20

Q10: **Please rate the usefulness of LANDFIRE Fuel Products**



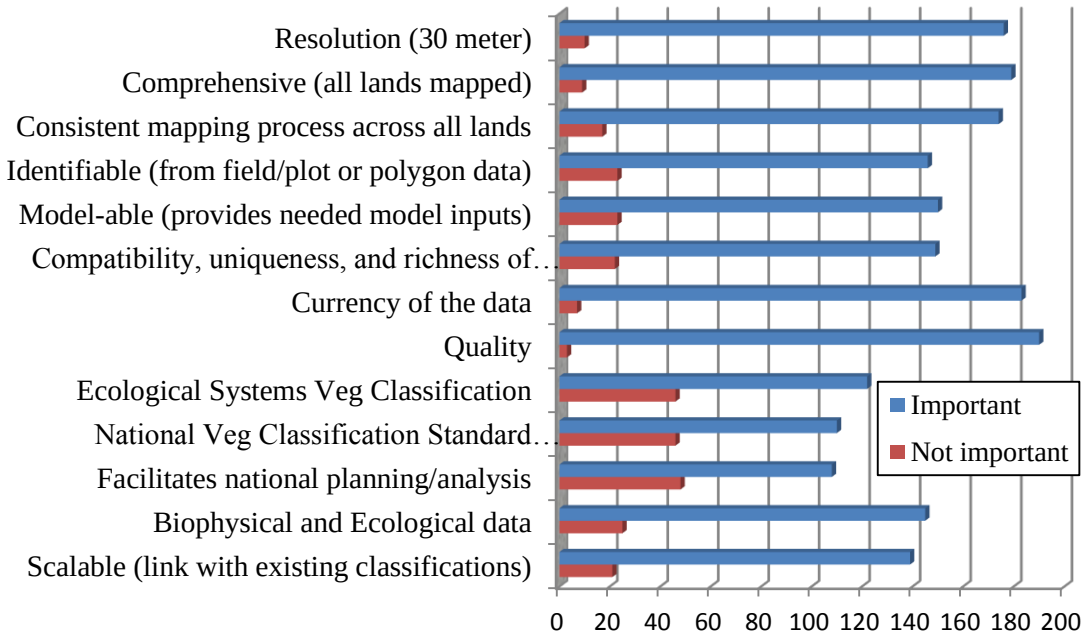
Answer Options	Very useful	Useful	Somewhat useful	Not useful
13 Anderson Fire Behavior Fuel Models (FBFM13)	45	56	30	17
40 Scott and Burgan Fire Behavior Fuel Models (FBFM40)	66	54	16	10
Canadian Forest Fire Danger Rating System(CFFDRS)	22	23	24	14
Fuels Characteristics Classification System (FCCS)	25	29	33	16
Fuel Loading Models (FLM)	27	42	24	18
Forest Canopy Cover (CC)	59	51	25	12
Forest Canopy Height (CH)	57	49	27	14
Forest Canopy Bulk Density (CBD)	55	45	25	14
Forest Canopy Base Height (CBH)	56	45	24	16
Landscape (.LCP) Files	55	37	18	12

Q11: **Please rate the usefulness of LANDFIRE Topographic Products**



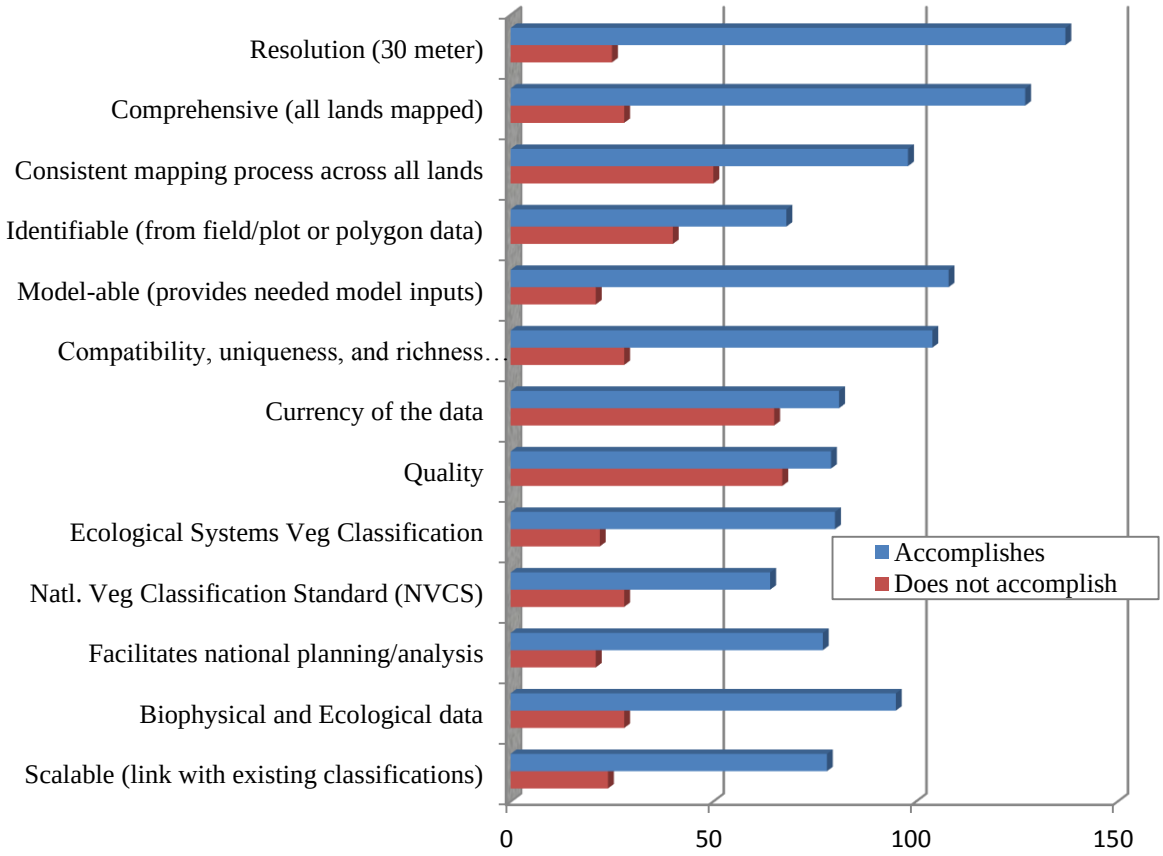
Answer Options	Very useful	Useful	Somewhat useful	Not useful
Aspect	68	62	29	8
Elevation	72	56	32	7
Slope	68	60	30	9

Q12: **Which of these LANDFIRE characteristics is important to you?**



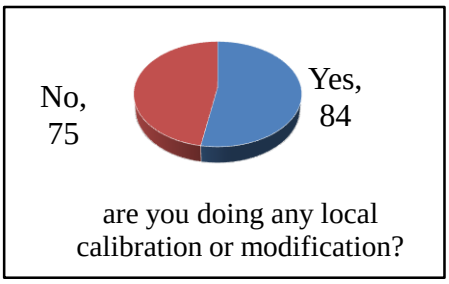
Answer Options	Important	Not important
Resolution (30 meter)	176	10
Comprehensive (all lands mapped)	179	9
Consistent mapping process across all lands	174	17
Identifiable (from field/plot or polygon data)	146	23
Model-able (provides needed model inputs)	150	23
Compatibility, uniqueness, and richness of the data layers	149	22
Currency of the data	183	7
Quality	190	3
Ecological Systems Veg Classification	122	46
National Veg Classification Standard (NVCS)	110	46
Facilitates national planning/analysis	108	48
Biophysical and Ecological data	145	25
Scalable (link with existing classifications)	139	21

Q13: Which characteristics does LANDFIRE actually accomplish?



Answer Options	Important	Not important
Resolution (30 meter)	137	25
Comprehensive (all lands mapped)	127	28
Consistent mapping process across all lands	98	50
Identifiable (from field/plot or polygon data)	68	40
Model-able (provides needed model inputs)	108	21
Compatibility, uniqueness, and richness of the data layers	104	28
Currency of the data	81	65
Quality	79	67
Ecological Systems Veg Classification	80	22
National Veg Classification Standard (NVCS)	64	28
Facilitates national planning/analysis	77	21
Biophysical and Ecological data	95	28
Scalable (link with existing classifications)	78	24

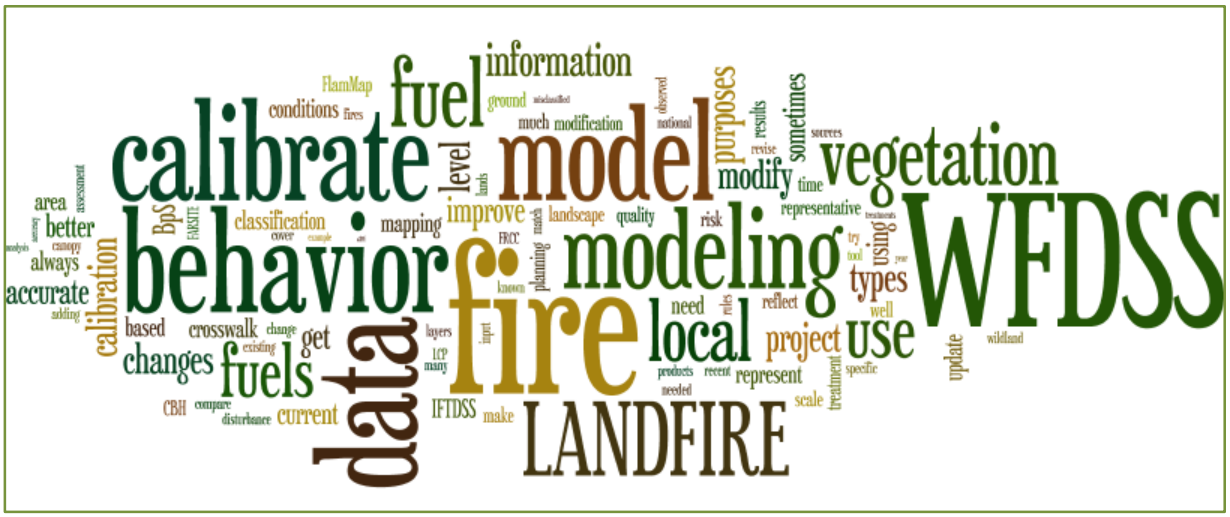
Q14: If you are using LANDFIRE data, are you doing any local calibration or modification? If you are calibrating, please describe what kind of calibration and why. Example: "I only calibrate within WFDSS for fire behavior modeling purposes."



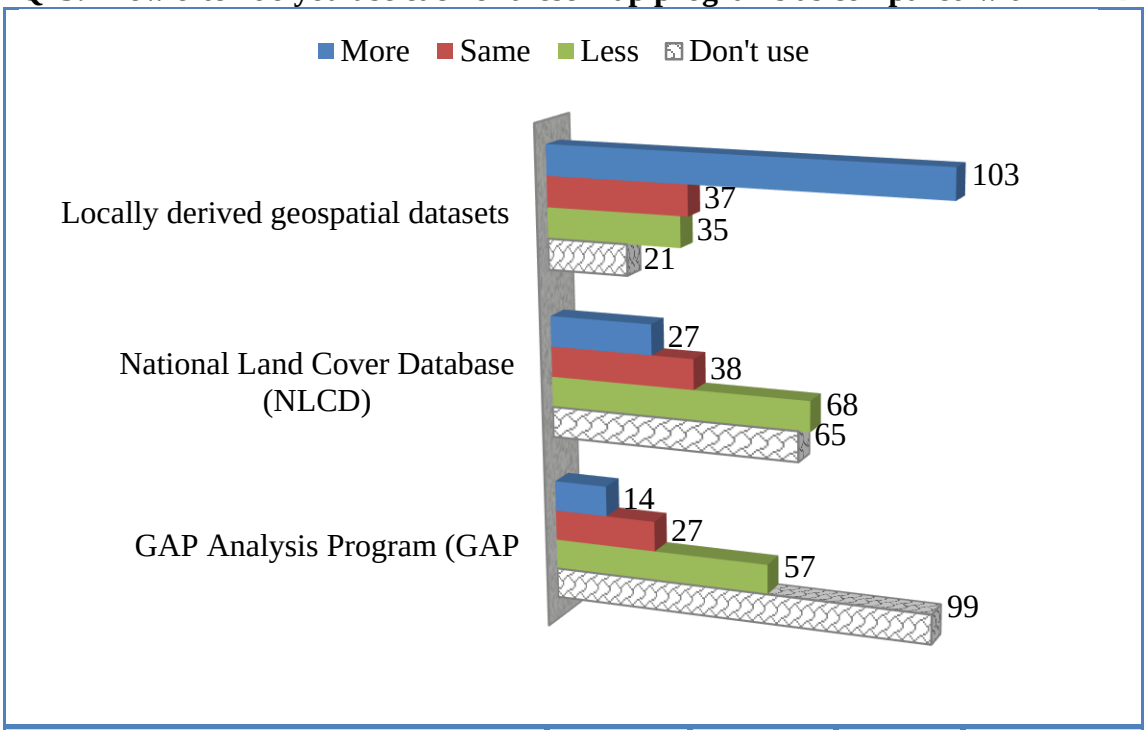
The question regarding calibration and modification received 88 comments. Including six comments from responders who provided "no" answers:

- I only calibrate within fuel models for fire behavior modeling purposes.
- Not yet, but will use LiDAR in the near future.
- I do not usually have the time to fix the data to run it at a small project level. I looked at using the change tool to fix the areas that were heavily grazed to be a grass fuel model rather than a shrub model but the amount of time it would have taken was not feasible.
- Would like to calibrate but have not at this time.
- Used calibration to run flam-map separate from WFDSS. Needed significant modification so the only real usefulness was that the flam-map program is set up to work with LANDFIRE data.
- The data are too poor to modify in any reasonable way. EVT, EVC, BpS, ESP, all seem pretty bad, and difficult to modify in a way ... easier to re-do myself using NLCD and other data for map overlays.

There are 80 comments from the respondents who supplied "yes" answers. Of these comments, 30 include fire behavior modeling. Within the "yes" answers, 36 comments include using WFDSS for calibration. At least 14 of the comments pertain to adjusting data to fit the local knowledge. There are 8 comments that discuss modifying data for fuel models. Canopy Base Height, BpS and VDDT are other features that sometimes need calibration. One respondent did describe crosschecking data with GoogleEarth and LANDSAT imagery.



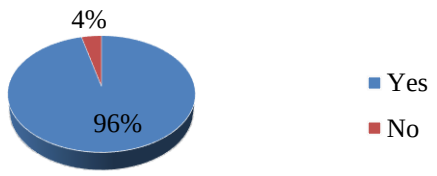
Q15: How often do you use each of these map programs as compared with LANDFIRE?



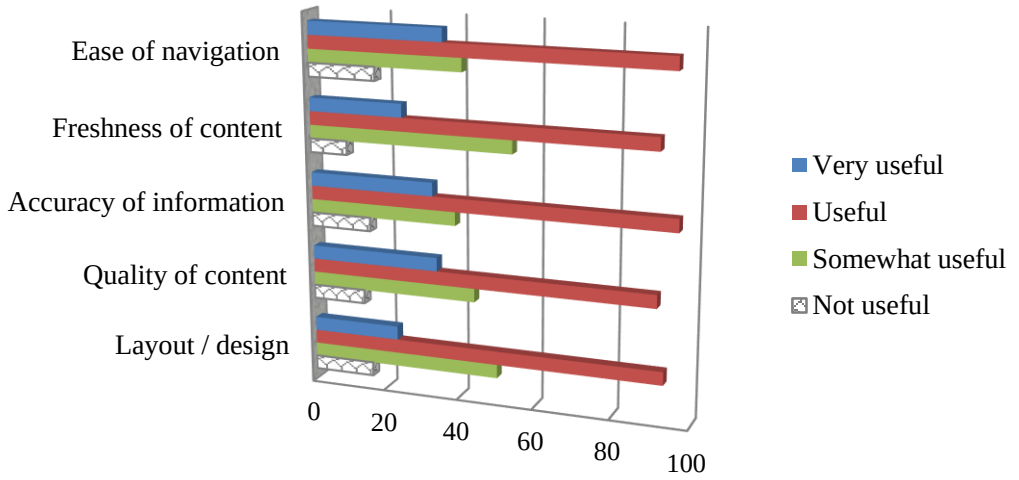
Answer Options	More	Same	Less	Don't use
Locally derived geospatial datasets	103	37	35	21
National Land Cover Database (NLCD)	27	38	68	65
GAP Analysis Program (GAP	14	27	57	99

Q16: Have you visited the LANDFIRE website?

Answer Options	Response Percent
Yes	96.1%
No	3.9%

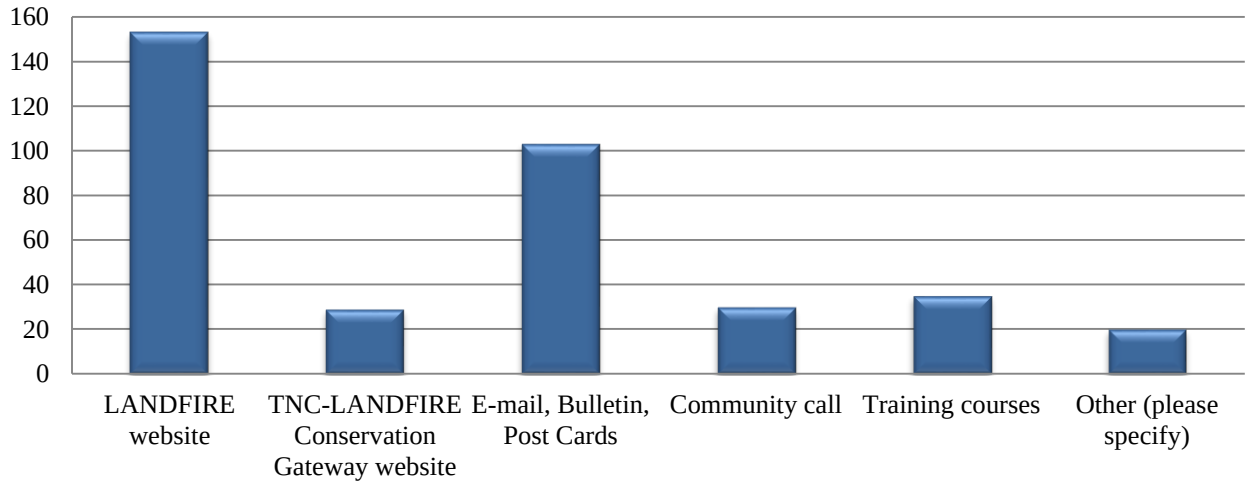


Q17: If yes, what attributes of the website do you find useful?



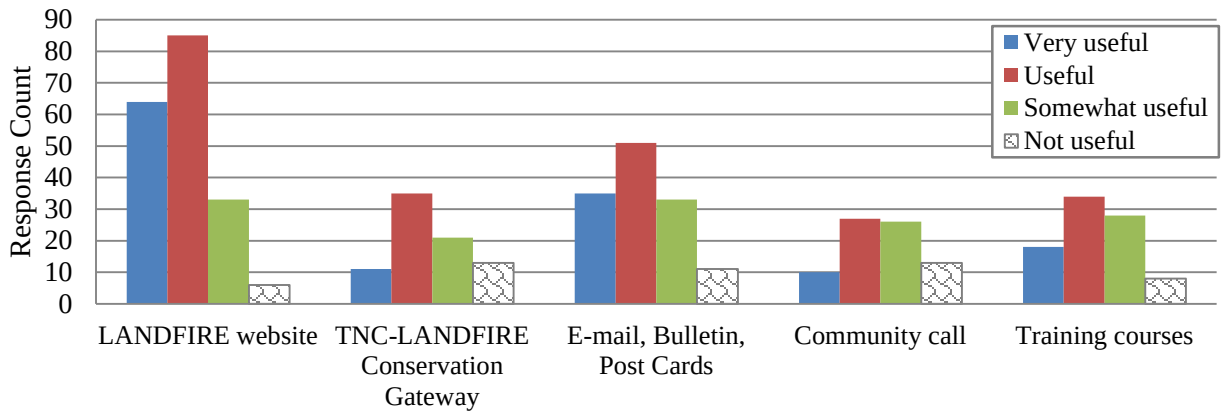
Answer Options	Very useful	Useful	Somewhat useful	Not useful
Ease of navigation	36	95	41	18
Freshness of content	25	91	54	10
Accuracy of information	33	96	39	16
Quality of content	34	91	44	14
Layout / design	23	93	50	16

Q18: How do you stay current with LANDFIRE information? Check all that apply.



Answer Options	Response Count
LANDFIRE website	153
TNC-LANDFIRE Conservation Gateway website	29
E-mail, Bulletin, Post Cards	103
Community call	30
Training courses	35
Other (please specify)	20

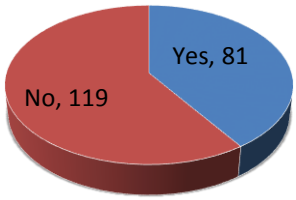
Q19: Rate the usefulness of these options:



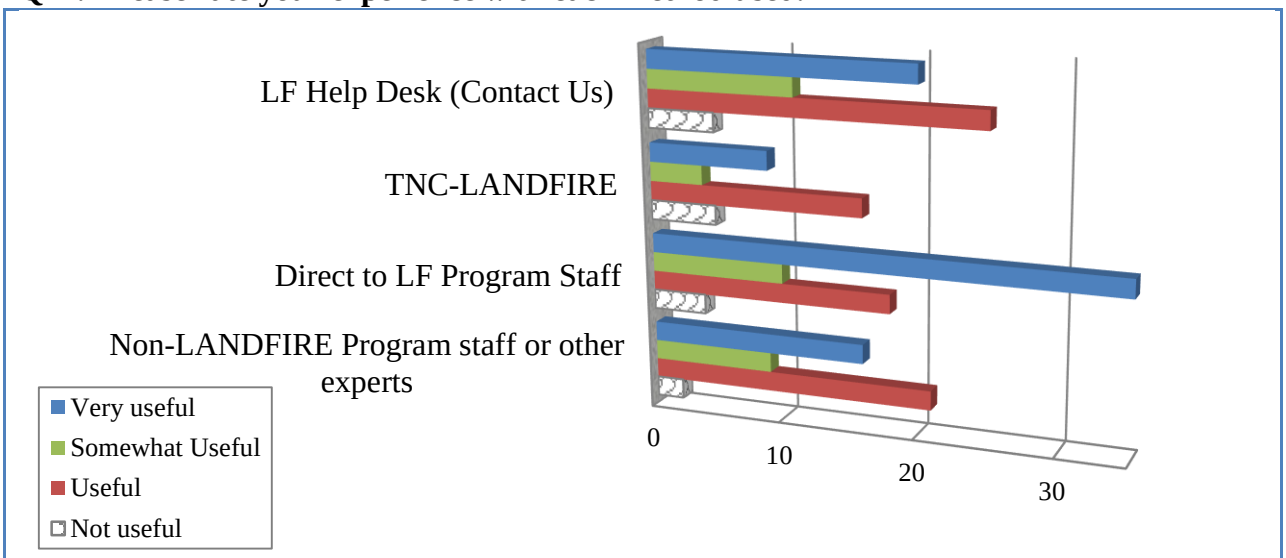
Answer Options	Very useful	Useful	Somewhat useful	Not useful
LANDFIRE website	64	85	33	6
TNC-LANDFIRE Conservation Gateway	11	35	21	13
E-mail, Bulletin, Post Cards	35	51	33	11
Community call	10	27	26	13
Training courses	18	34	28	8

Q20: Have you ever tried to contact LANDFIRE for help?

Answer Options	Response Count
Yes	81
No	119



Q21: Please rate your experience with each method used.



Answer Options	Very useful	Useful	Somewhat Useful	Not useful
LF Help Desk (Contact Us)	20	25	11	5
TNC-LANDFIRE	9	16	4	5
Direct to LF Program Staff	35	18	10	4
Non-LANDFIRE Program staff or other experts	16	21	9	2

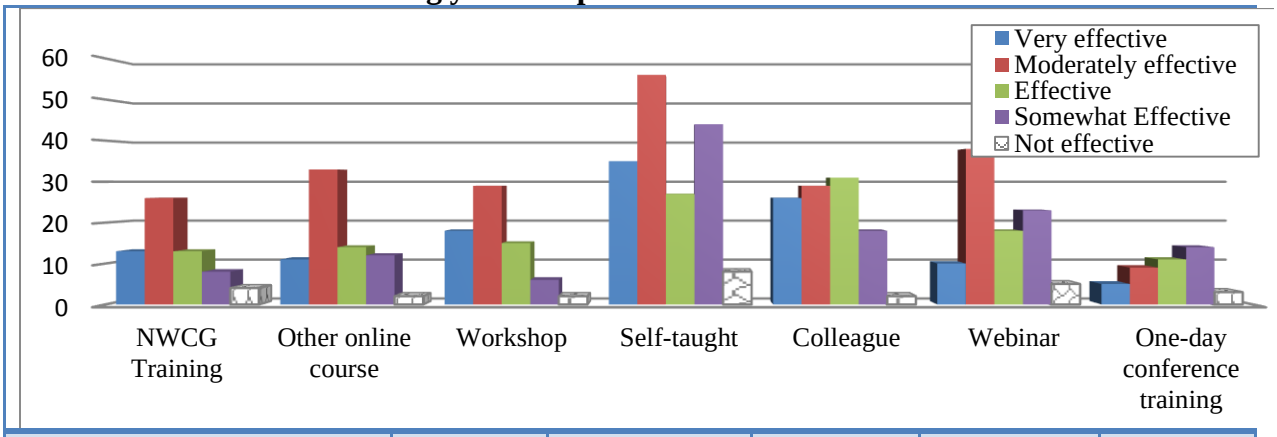
Q22: How could LANDFIRE improve customer service?

The question for methods of improvement to customer service received 29 responses. Of these responses, 21% provided very positive comments about the Customer Service, LANDFIRE and/or TNC staff. Four of the comments raised issues with the timeliness of Help Desk responses. Included in these comments are suggestions for actual telephone numbers (instead of email), on-line chat, and screen sharing. Along this same line of thought, a respondent suggested that a forum be provided to enable users to find answers without contacting the HelpDesk or customer service. One respondent replied with "Open-Ended Response", this could be interpreted as having received incomplete answers.

There is some discussion about subject matter experts and the ability to contact them directly and to learn more about specific local geographic areas.

There are suggestions that imply that improving accuracy and the website features would be improvements to customer service.

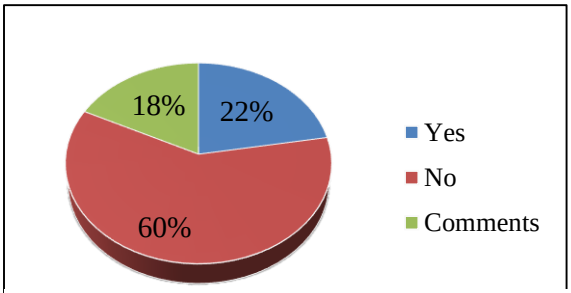
Q23: What has been your training with LANDFIRE data? Please rate the effectiveness of each method of training you've experienced.



Answer Options	Very effective	Moderately effective	Effective	Somewhat Effective	Not effective
NWCG Training	13	26	13	8	4
Other online course	11	33	14	12	2
Workshop	18	29	15	6	2
Self-taught	35	56	27	44	8
Colleague	26	29	31	18	2
Webinar	10	38	18	23	5
One-day conference training	5	9	11	14	3

Q24: Is your knowledge of or training with GIS a barrier to your use or access of LANDFIRE data and tools? In the "comments" field please list what would make your use or access better, such as pre-packaged maps/graphics of the data summarized by state, county, administrative unit; tabular report/summaries of the data, etc.

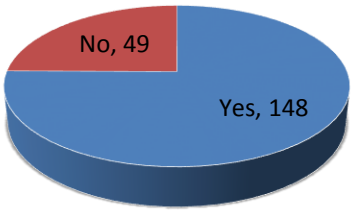
For those users who find lack of experience with GIS a barrier to the use of LANDFIRE data and tools we asked for comments on types of products that would reduce this barrier. Although we had 42 responses, seven of these responses are statements reporting strength of GIS skills. Six of the responses suggest additional training such as webinars and GIS refresher classes. Nine responses did suggest that prepackaged maps and summaries by administrative units would be useful. Five respondents would like interfaces that do not require extensive GIS knowledge such as the ESRI online-gis: https://www.arcgis.com/explorer/ . Two suggestions were to make available a method for generating KMZ files that work with the GoogleEarth application. Three respondents suggested new tools that automated tasks such as unzipping and extracting, and mosaicking as well as enabling the use of remotely sensed data with LANDFIRE data. One respondent, a small business owner, voiced the idea that the ArcGIS license is expensive and restricts his usage.



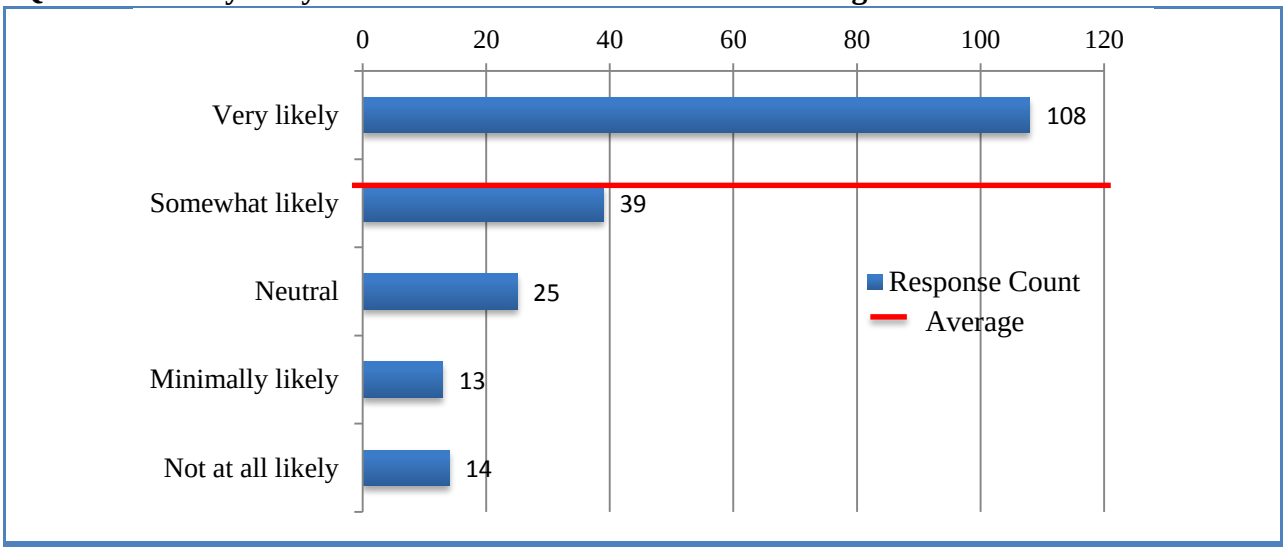
Is your knowledge of or training with GIS a barrier to your use or access of LANDFIRE data and tools?

Q25: Have you recommended LANDFIRE data products to others?

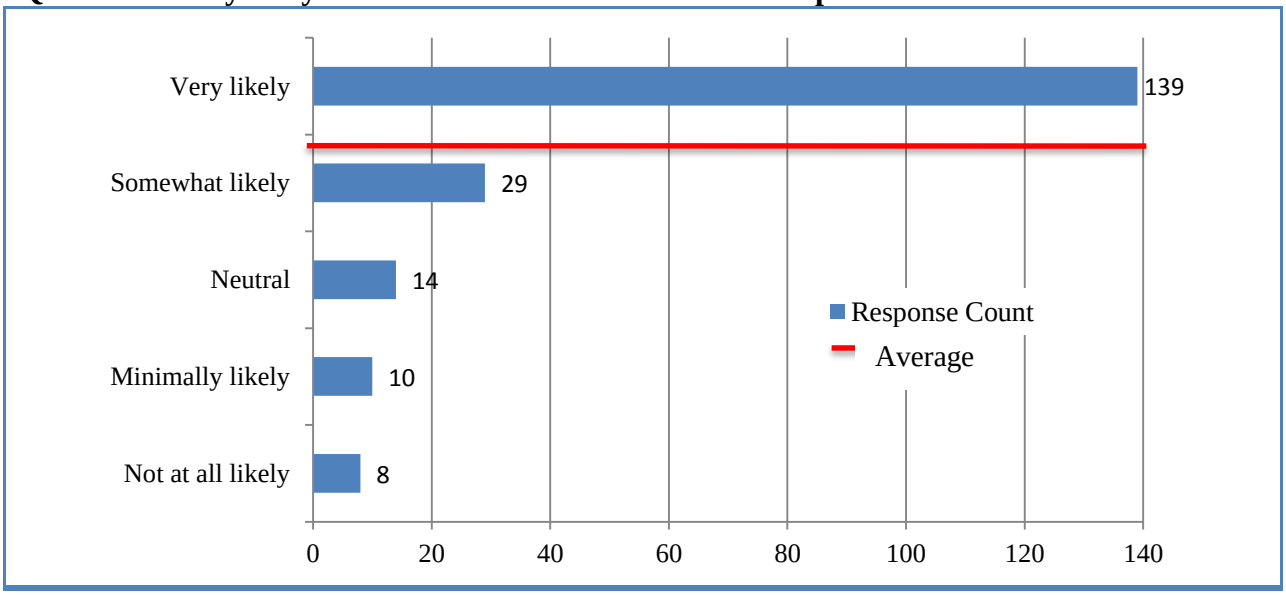
Answer Options	Response Count
Yes	148
No	49



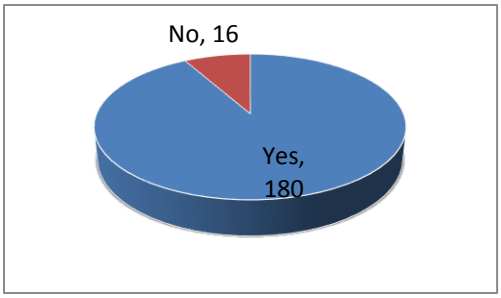
Q26: How likely are you to recommend LANDFIRE to colleagues in the future?



Q27: How likely are you continue to use LANDFIRE data products?



Q28: Should the LANDFIRE program be supported in the future?

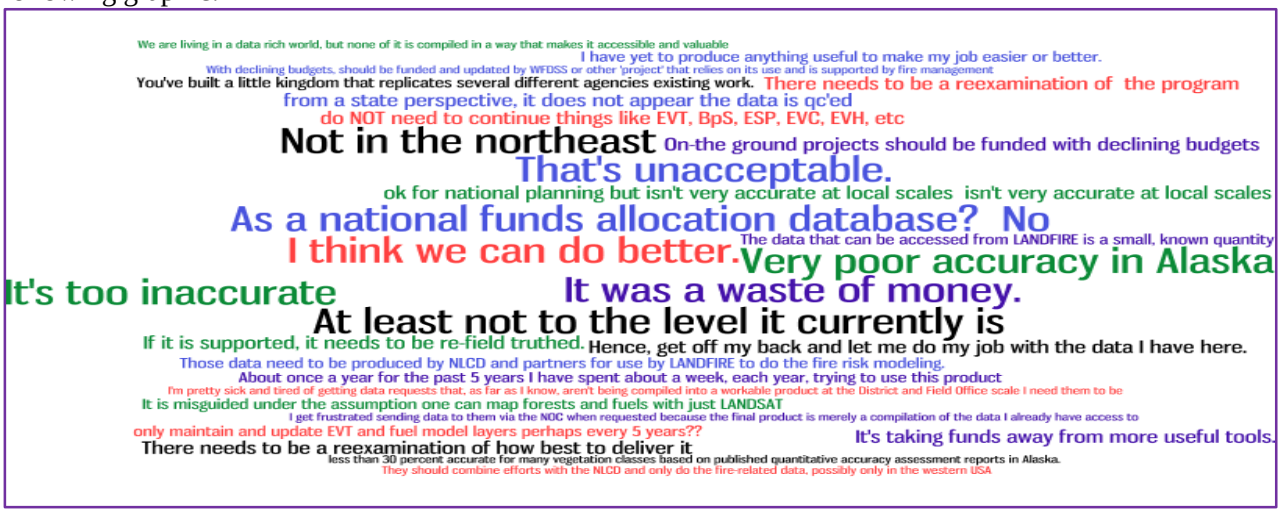


The survey question "Should the LANDFIRE program be supported in the future?" received mostly "yes" responses, 92%. From these "yes" respondents, there are 82 comments as to why the program should be supported. Below is a synopsis of the many reasons why:

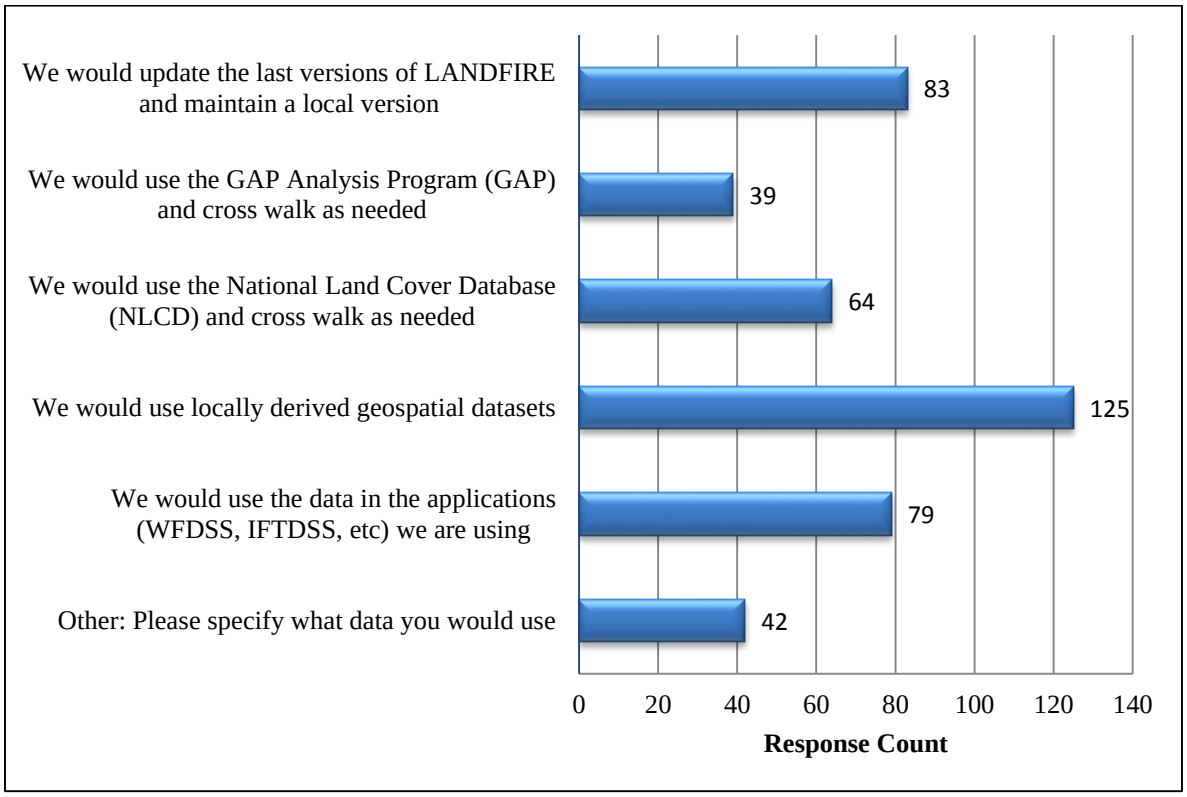
LANDFIRE data is:

- important for multiple uses
- allowing most land management agencies to finally answer questions about how we manage land.
- a critical data set that is more than just a fire data set
- used in an array of applications.
- the only data of its kind at a good resolution, it is however outdated fast
- base data for consistent wildfire risk modeling across the country
- best bet for wall-to-wall map used for fire management that will be updated, despite problems with data accuracy.
- the only source of consistent data across the U.S.
- the only comprehensive dataset offering this information.
- extremely valuable for doing regional to national assessments of vegetation condition and fire regime condition.
- the best comprehensive and consistent data set in the U.S.
- very useful and reduces the amount of data gathering that forest/districts don't have time to do
- incredibly valuable for planning at the landscape scale.
- nationally available seamless dataset for fire behavior models and for land management planning.
- comprehensive/national level spatial dataset with fire components.
- used by many fire modelers as the de-factor go-to dataset.
- the only wall-to-wall coverage available for fuels and veg data.
- the foundation of many of the applications we use
- updateable with local knowledge
- Very valuable for running fire behavior simulations and models

This question received 16 "no" responses with 15 comments; please note the comments in the following graphic:



Q29. If LANDFIRE data products were not updated and remapped, what would you do? Choose all that apply.



From the 42 comments, the general consensus is that there is not a better alternative available. Two of the comments were concerned with meeting regulatory or mission requirements. LiDAR is a suggested option in three comments; however, the means of obtaining and processing of this type of data is not discussed.

About one third of the comments suggested updating existing LANDFIRE data with local substitutes including:

- ILAP - The Integrated Landscape Assessment Project is landscape-wide vegetation mapping across Oregon and Washington.
- LANDSAT and other satellite imagery
- Local geospatial data such as wildfire perimeters, and vegetation treatments
- NOAA Coastal Change Analysis Program (C-CAP)
- Field Sampled Vegetation (FSVeg) stores data about trees, fuels, down woody material, surface cover, and understory vegetation from the U.S.D.A. Forest Service.
- The Forest Inventory and Analysis (FIA) from the U.S.D.A. Forest Service.
- National Land Cover Data (NLCD).
- The National Wetlands Inventory (NWI) from the U.S. Fish and Wildlife Service.

Q30: With the LANDFIRE remap, are there additional products that LANDFIRE should produce and add to the 20+ deliverables?

Layer Type	Specifics
accuracy	accuracy assessments
BAER	Additional layers that support BAER - Burned Area Emergency Response work would be very useful!
BAER	BAER Team severity mapping inside existing fire perimeters as update to LANDFIRE
boundaries	Federal and municipal land boundaries
climate	Climate change vulnerability, climate change velocity.
climate	climate change predictions
climate	Wind model and historical wind datasets Climate model predictions
cover	Cover Type
disturbance	Disturbance regimes for BPS models in addition to fire; landscape range (R) for each S-class per BPS model
disturbance	Yearly disturbance histories that come out faster, and focus more on non-fire disturbances.
FRCC	FRCC
FRCC	FRCC Frequency
FRCC	FRCC Severity
invasive	invasive weeds - e. g. cheatgrass infestations
invasive	Maps of invasive vegetation are very important and should be a separate product, especially where they modify the fire regime. Having these buried in the EVT (and poorly represented there) and in the SClass is not good enough.
local updates	field updating
metadata	Clear delineation history of vegetation change dates and history.
metadata	would like to see the metadata for the remotely sensed data; i.e. dates of data collection
model	dynamic model usage based on seasonality, drought, phenology
model	Forest Change Detection
model	fuel model specific to mountain pine beetle and similar disturbances would be helpful.
model	smoke modeling
remote sensing	Test areas using LiDAR to derive canopy height etc...
resolution	10m data
vegetation	existing vegetation that does not include potential seral stages (for Alaska)
vegetation	instead of EVC lumping in forest canopy and shrub canopy and grass cover, having each separate would provide better modeling of mixed regions - instead of 50% forest - I'd like to get 50% Forest 30% shrub 20% grass
vegetation	Plot based Vegetation Cover or Dominance Type that is not just an attribute of EVT
vegetation	Storiedness, vertical diversity of forested objects.
vegetation	Trees per acre/hectare
vegetation	Vegetation Density!
wetland	Better wetland classes

Q31. Do you have any suggestions on how we might further improve our product offerings?

There are 42 suggested ideas for improving the LANDFIRE products. Eleven of these suggestions (31%) referred to accuracy. The accuracy suggestions vary from accuracy assessment layers to ground truthing. Three of these accuracy suggestions were from Alaska.

Increased resolution is a consistent request; three of these respondents suggested higher resolution and one suggested a more coarse scale – perhaps the terminology on this one is a bit backwards.

The next type of change category would be collaboration; there were four of these types of suggestions. Two of these specifically suggested to work more with ESRI and included ideas such as become an ESRI partner and coordinating around ArcGIS updates and mobile technology.

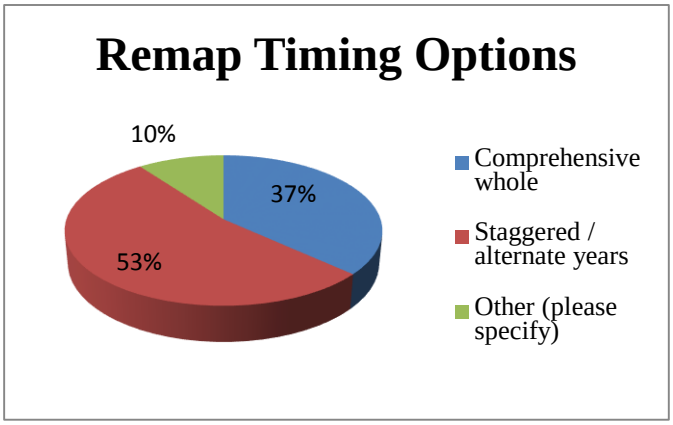
Other GIS and Remote sensing options are also of interest. Creating KMZ files that easily work with Google Earth would sometimes be useful. In the same light, vector based GIS layers instead of raster data would be compatible with other data and useful in a range of analysis. LiDAR data is a possible data type that could be implemented in developing a various canopy data layers; however, national coverage is not yet available.

Training and dispersing of information. Five of the respondents suggested a need for more training, including webinars and one-day workshops. Two others suggested methods for advertising what others are using LANDFIRE for and more explanations of how the data is developed. Specifically, more documentation especially when data is updated or modified.

Update suggestions were of three types: VDDT, local and Nationwide LANDFIRE data. The VDDT reference condition models need an update and could be modified to represent current conditions; these state and transition models could be updated to ST-Sim

Singular suggestions include better wetland classes, having departments adopt a formalized protocol, and improving the website.

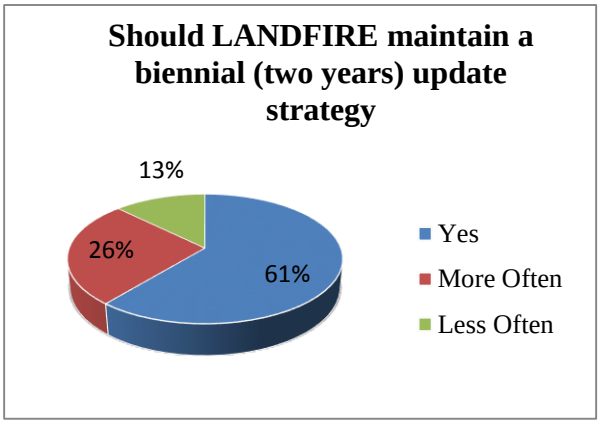
Q32: Would you rather see LANDFIRE remap data products completed comprehensively for the entire CONUS, Alaska, and insular areas (delivered at the end of a 2- to 3-year development effort), or can remap completion and delivery be staggered in alternate years over a 4- to 6-year period?



The ideas presented in the comments range from **"All of North America WEEKLY"** to annually and at the same rate as NAIP, which is 3 to 5 years depending on funding. Two comments emphasized that accuracy was more important that frequency; although more frequent would be appreciated. More specific comments regarding staggering include:

- Could stagger AK, HI, and Insular alternate from CONUS, but CONUS should be comprehensive
- Important to update at least the fuels from disturbances more frequently
- Make available as completed and make year of data obvious to user and older versions available.
- only do the west, and then contract out for the rest of the USA to people who know more about those regions outside the western USA
- since my state has six regions, partial update not as useful
- stagger by region
- The delivery could be staggered but the time period being mapped should remain constant for the entire country.

Q33: Should LANDFIRE maintain a biennial (two years) update strategy (Data Products updated for disturbances)? In the "comments" field, please list your thoughts on this strategy.



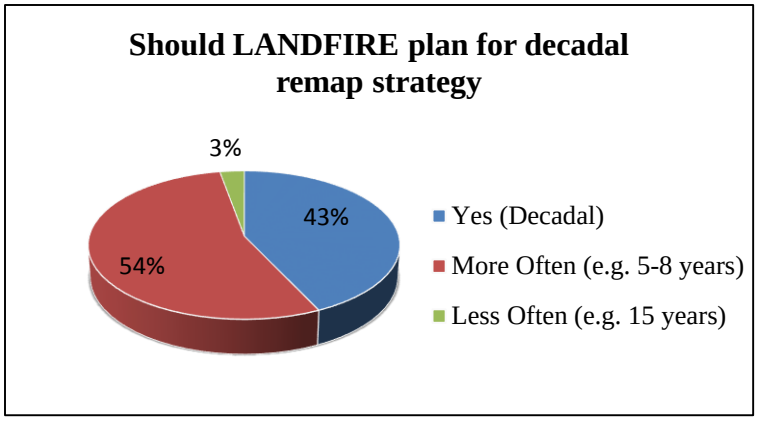
When asked for comments on the timing strategy for products updated for disturbances, there were 51 comments. The biennial strategy is the preference of 40% of the respondents.

Of the total respondents, 8 suggested annually with a few contingencies. These contingencies include annual updates of areas that have had disturbances such as fire and utilizing locally derived data annually.

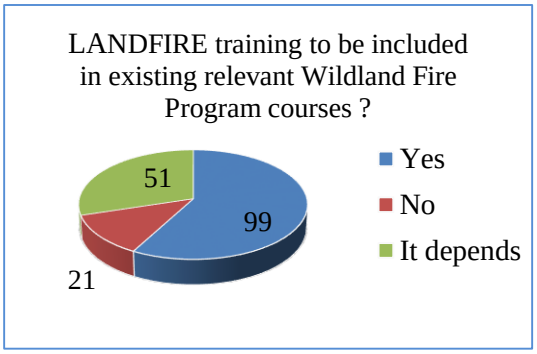
An additional five of the respondents suggested more often and that more is better. For a 3-year strategy, one responder stated 3 years is sufficient and another questioned the feasibility of more frequent processing without additional funding. Three responders thought less often could be sufficient; however, two of these qualified the less often with more emphasis on quality and documentation.

Q34: LANDFIRE is planning for a decadal (~ 10 years) remap strategy (data products remapped across all lands using the most recent imagery). Is this an appropriate frequency to have remapped data products for your use? In the "comments" field please list your thoughts on this strategy.

When asked if a decadal (10 years) remap strategy is an appropriate frequency for data products, 44 of the responders provided remap strategy comments: 13 from the decadal option, 26 from the more often option, 2 from the less often and 3 were indecisive between decadal or more often. Despite the response option, six (6) of the comments suggested that locations with disturbances are updated more frequently. Several comments were made 10 years is too long in light of urban encroachment, natural disasters and management actions. Another commented in timber country, one large harvest unit completely changes the dynamics of an area.



Q35: Would you like LANDFIRE training to be included in existing relevant (Wildland Fire Program courses) S- or Rx-courses? In the "comments" field please list courses you have experience with where LANDFIRE data should be integrated.



When asked if LANDFIRE training to be included in existing relevant Wildland Fire Program courses; there were 171 responses. Of these, 60 of the responders provided more specific information on training integration needs. The S-495 and S-490 coursework are the courses most commonly listed (14 and 9 respectively).

Specific recommendations from those "Yes" responders include:

- All modeling and fuels management-focused classes.
- Base layers for Suppression, RX and recovery planning already so why not?
- Continue S-495 education and possibly enhance. There has been too much emphasis on total reliance of data from WFDSS.
- GISS GSAN could be part of the curriculum to know about it and to use the LFDAT tool.
- I have not had any recent training courses where LANDFIRE data was integrated into the curriculum.
- I have reviewed material for S-495 - this would be a great place to include some LANDFIRE training. In addition, RX-310 or other RX courses would benefit from including LANDFIRE info. This may become more natural when IFTDSS is included in RX training courses.
- It is already incorporated in some important S classes but I think RX classes would be a good application.
- More LANDFIRE and HOW to use it would be helpful.
- Most S-400 and 500 should include a basic knowledge that it exists, and more hours of training for those courses that LANDFIRE should be used.
- Needs to be part of fire behavior modeling courses. S-495 has information on it but that has been my only experience with training on LANDFIRE.
- Never taken a course.
- Not so much training as awareness. Folks have computer skills when they are coming into the organization and our fire behavior courses should take advantage of that earlier in people's fire careers. RX planners should be using the stuff across the board so it should be in the training.
- RX courses, but also just a general GIS/LANDFIRE/data course for RX and fuels, ecology, etc.
- Spatial fire behavior/modeling needs to be integrated into the entire NWCG curriculum. Even in S-490, there are few to no mentions of spatial modeling, just the standard vectoring. We are teaching our employees to base their predictions on all of the downfalls of basic fire behavior modeling, namely that fuels are constant in addition to everything else. We have overcome that barrier; let us teach to it. Courses which could include LANDFIRE data: RX-341 RX-310 S-390 S-490 S-234 At the rate this data is changing the game, to not integrate it into earlier S and RX courses is doing a disservice to our future fire managers.

course	times mentioned
S-495	14
S-490	9
S-390	7
RX-310	5
S-general	4
S-590	3
RX-341	2
S-491	2
BurnBoss	2
M-580	1
RX-301	1
RX-410	1
S-234	1
S-341	1
S-482	1
S-493	1

- These courses need to be made available online to agencies that assist the Land Management agencies (e.g. the National Weather Service).
- Yes, greater exposure to the products such as these classes are important.

There were 18 comments from the IT DEPENDS respondents. Four of these comments emphasize the need for GIS as background knowledge prior to course work.

One responder suggested that a lesson on how to adjust data layers in WFDSS could be part of S-495 or S-590; and the general overview of LANDFIRE could be useful in lower levels of both S- and RX-courses. Another responder suggested a standalone session that is available online with credit for completing and passing the course. Within the No comments, one responder promoted the University of Idaho Forestry 437 course.

Q36: The LANDFIRE program partners with several other programs (see "About LANDFIRE" and "LANDFIRE Partnerships"). Are there other organizations that LANDFIRE should collaborate and/or integrate data processes, methods, etc? Please list your thoughts on these products and provide as much specificity and detail for application as possible.

Q37: In your opinion, what is the most important issue facing LANDFIRE today?

The question "what is the most important issue facing LANDFIRE today" received 105 comments. The majority of the comments pertain to six general issues: accuracy (31), funding (20), marketing (4), quality (8), training (7), and updates (28)

The accuracy comments are very diverse and range from just "accuracy" to complex and specific issues. The specific issues include:

- Accuracy for use in WFDSS
- Ground truthing product.
- Conifer under story mapped as hardwoods.
- fuel models with current disturbances
- pine plantations in the south are not properly mapped
- inaccurate boundaries
- formalized accuracy assessments
- EVT mapping in Alaska

Complex comments include the following grammatically edited quotes:

> Accuracy of fuel type assignments, especially in East. Fuel types change at LANDFIRE zone boundaries even though actual fuels are the same due to the process of calibration (using local groups to do this without interaction between groups to "smooth" out changes)

> Over the last 10 years, managers have used the data. During the first calibration workshops, no one foresaw the extent this data would be used. Additional calibration is necessary consulting local field personnel and mangers with first-hand knowledge. New products such as LiDAR can greatly improve the existing information.

> Data Quality - LANDFIRE works fine for National scale planning, but is being pitched more for project level work where data quality at a finer resolution becomes more important. At the very least LANDFIRE should continue to illustrate ways that the data can be calibrated/manipulated for local projects, but ideally, the out of the box product should be accurate at a finer scale (say a HUC 12).

> Inaccuracy of the EVT, at least outside the western USA, gives LANDFIRE bad press, and this poor reputation is really hurting all aspects of LANDFIRE. Failure to make partners with regional workers leads to the notion of a 'federal imperial' approach, which in fact is sometimes

> directly voiced by LANDFIRE. It is difficult to understand why LANDFIRE and NLCD cannot cooperate on EVT and EVC.
>
> User confidence in the LANDFIRE product, which is related to accuracy. In my area, LANDFIRE is not being used outside of the fire community due to accuracy issues, but it is used for funding of fire programs nationally despite these accuracy issues. Ecological uses in other regions are highlighted by LANDFIRE, which is frustrating when basic fire-related issues still need to be addressed in my region

The comments regarding funding, like accuracy, also range from simple funding to complex discussion. The more specific comments for continued funding generally relate to updates. Complex comments include the following grammatically edited quotes:

> Formalized Program management structure with dedicated funding to continue to update and remap the Nation. Right now management is loosely configured and appears to be distracted on other things and data are only as good as the last update/remap.
>
> Funding to keep the updates coming at a 5 - 10 interval.
>
> Funding to maintain the program and getting the word out that the data can be used by a much larger audience (non-fire types) as part of NEPA analysis, fieldwork, etc.
>
> Its usefulness and the money it costs in this new economy. I believe it should be questioned if it is necessary and relevant today. The NFP is 11 years old now and fuels reductions haven't appeared to reduce the cost of large wildfires. Areas with little or no WUI, or sagegrouse, aren't funded well. LANDFIRE is a short-lived dinosaur and its extinction wouldn't be a problem. Thanks for the opportunity to vent.
>
> Maintaining consistent funding in order to keep quality of program and personnel
>
> Trust in outcomes (again tied to how utilized), adoption by non-fire, funding by non-fire

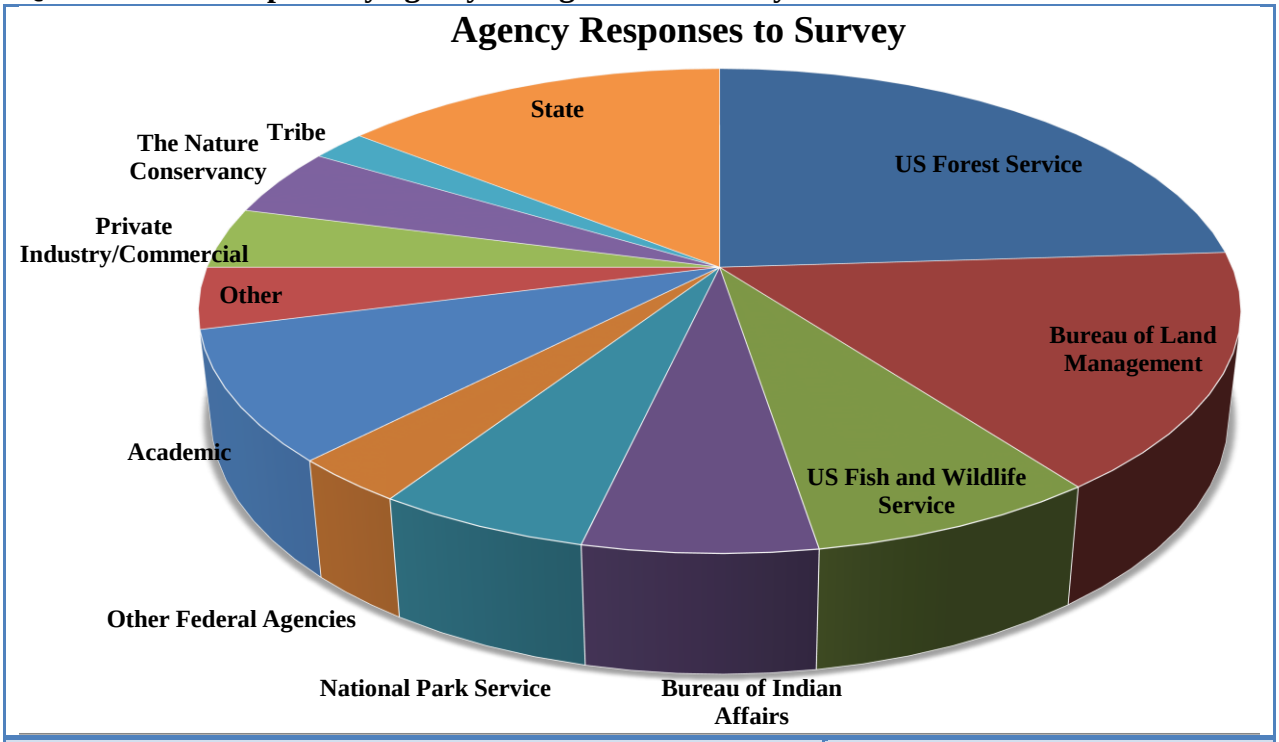
The four marketing comments are:

> Getting the word out about why LANDFIRE is important to the LOCAL units.
>
> I think LANDFIRE is behind the scenes in LOTS of projects but doesn't get the credit it deserves. Therefore, I think continuing efforts to do internal PR and even a bit of external PR with close partners is a pressing need.
>
> Land managers not seeing or believing LANDFIRE can be used for project level analysis.
>
> Marketing. I think LANDFIRE is just starting to display its relevance after 10 years of sweat and tears. It's embedded in a number of ways we do business now and I'm not sure that is always recognized. Having a consistent data set that encompasses the continental US and AK and HI allows land managers from the district to national level ask and answer questions. The fire management community is just beginning to really capitalize on this advancement. Making sure folks don't take LANDFIRE for granted will be a challenge, because if this data set goes away, we've lost the ability to collectively and methodically answer spatial land management questions across jurisdictional boundaries.

The training comments are essentially requests for further training and from a variety of disciplines such as GIS, hands-on-training, and fuels management planning.

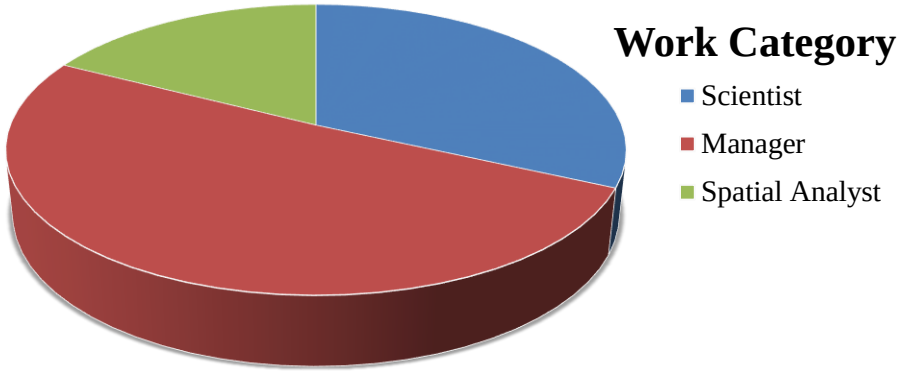
The comments regarding updates are requests to timeliness, keeping the data current, especially after disturbances, and emphasis to effects of climate change.

Q38: What is the primary agency or organization that you work for?



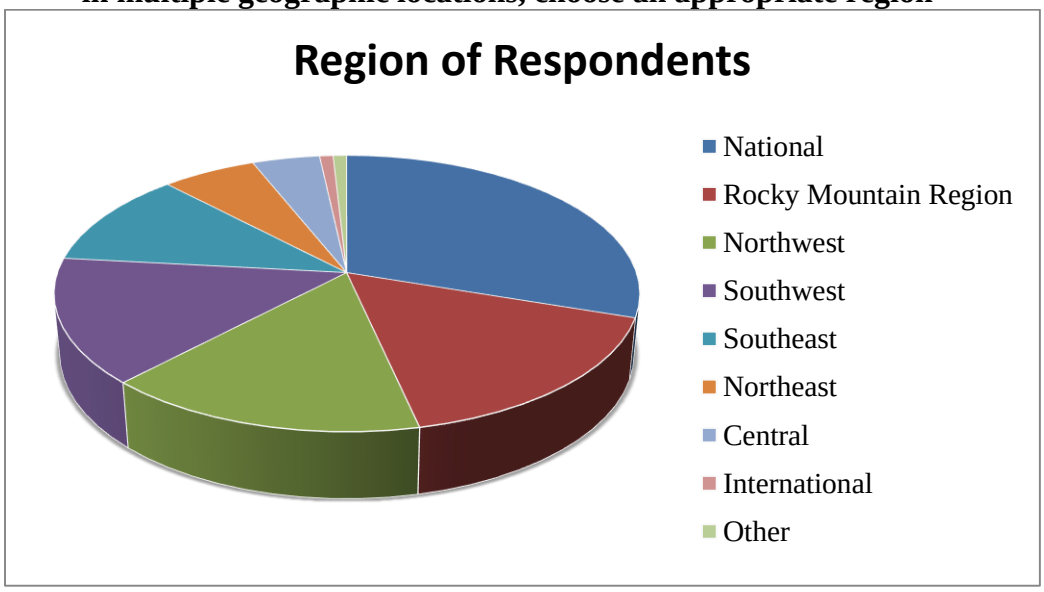
Answer Options	Response Count
US Forest Service	47
Bureau of Land Management	31
State	28
Academic	17
US Fish and Wildlife Service	15
Bureau of Indian Affairs	12
National Park Service	11
The Nature Conservancy	9
Private Industry/Commercial	8
Other	8
Other Federal Agencies	6
Tribe	4

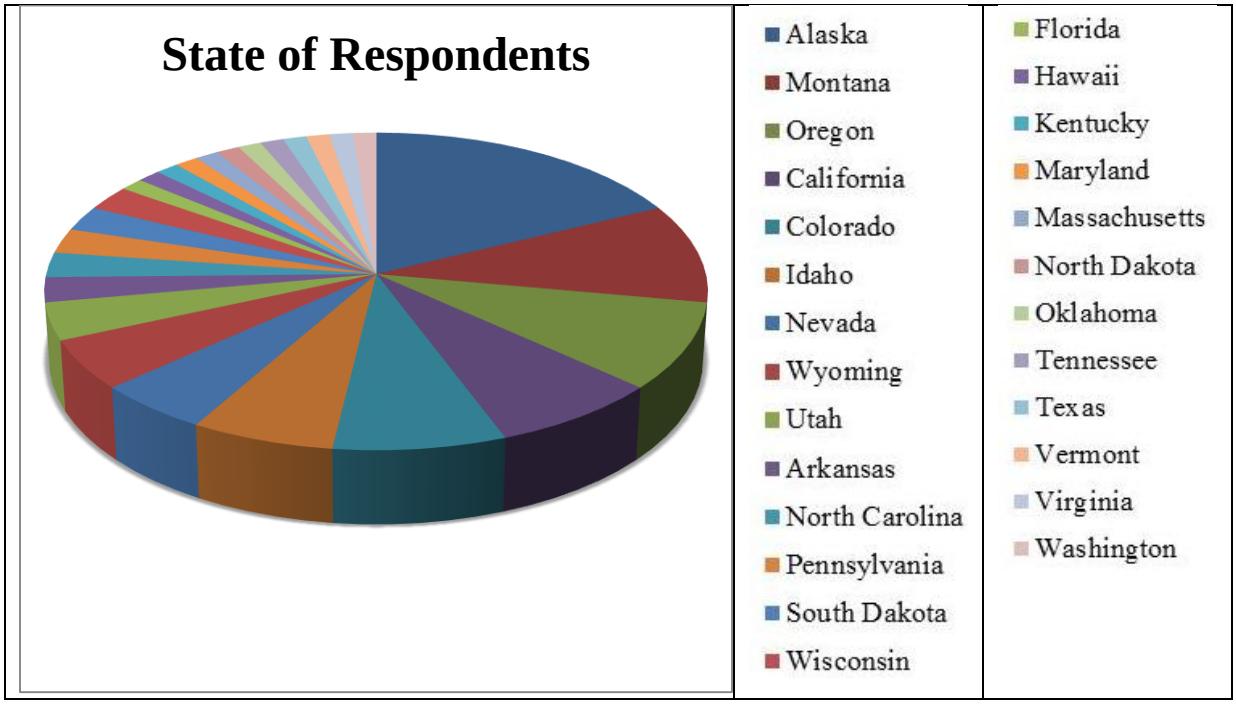
Q39) Please select the best fit from the categories listed below of the work you do or your position. If not listed, please provide a generic title in the space provided.



Scientist	62	Manager	99	Spatial Analyst	34
Ecologist (Fire or Vegetation)	35	Fuels Specialist or Technician	27	GIS Specialist	28
Biologist (Wildlife/Fisheries)	5	Fire Management	26	Geographer	5
Botanist	5	Fire Behavior Specialist	23	Cartographer	1
Silviculture or Forester	5	Natural Resource Manager	8		
Researcher / Scientist	4	Program – Manager, Analyst, Lead	7		
Biological Sciences	3	Land Use Planner	4		
Consultant	2	Rangeland Management	4		
Physical Science	2				
Meteorologist	1				

Q40: Which of the following best describe the location(s) of your work focus? If you work in multiple geographic locations, choose an appropriate region





Answer Options	Response Count
National	35
Rocky Mountain Region US	19
Northwest US	18
Southwest US	17
Southeast US	13
Northeast US	7
Central US	5
International	1
Other	1
Alaska	14
Montana	8
Oregon	7
California	6
Colorado	6
Idaho	5
Nevada	4
Wyoming	4
Utah	3
Arkansas	2
North Carolina	2
Pennsylvania	2
South Dakota	2
Wisconsin	2
Florida	1
Hawaii	1
Kentucky	1
Maryland	1
Massachusetts	1
North Dakota	1
Oklahoma	1
Tennessee	1
Texas	1
Vermont	1
Virginia	1
Washington	1

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